

of that Light in which they were held. In the full red Light they were totally red without any sensible blue or violet, and in the deep blue Light they were totally blue without any sensible red or yellow; and so in the green Light they were totally green, excepting a little yellow and blue, which were mixed in the green Light of the Prism. And comparing the fringes made in the several coloured Lights, I found that those made in the red Light were largest, those made in the violet were least, and those made in the green were of a middle bigness. For the fringes with which the shadow of a Man's Hair were bordered, being measured cross the shadow at the distance of six Inches from the Hair; the distance between the middle and most luminous part of the first or innermost fringe on one side of the shadow, and that of the like fringe on the other side of the shadow, was in the full red Light  $\frac{1}{37\frac{1}{2}}$  of an Inch, and in the full violet  $\frac{1}{46}$ . And the like distance between the middle and most luminous parts of the second fringes on either side the shadow was in the full red Light  $\frac{1}{22}$ , and in the violet  $\frac{1}{27}$  of an Inch. And these distances of the fringes held the same proportion at all distances from the Hair without any sensible variation.

So then the rays which made these fringes in the red Light passed by the Hair at a greater distance than those did which made the like fringes in the violet; and therefore the Hair in causing these fringes acted alike upon the red Light or least refrangible rays at a greater distance, and upon the violet or most refrangible rays at a less distance, and by those actions disposed the red Light into larger fringes, and the violet into smaller, and the Lights of intermediate Colours into fringes of inter-

intermediate bignesses without changing the Colour of of any sort of Light.

When therefore the Hair in the first and second of these Observations was held in the white beam of the Sun's Light, and cast a shadow which was bordered with three fringes of coloured Light, those Colours arose not from any new modifications impressed upon the rays of Light by the Hair, but only from the various inflections whereby the several sorts of rays were separated from one another, which before separation by the mixture of all their Colours, composed the white beam of the Sun's Light, but whenever separated compose Lights of the several Colours which they are originally disposed to exhibit. In this 13th Observation, where the Colours are separated before the Light passes by the Hair, the least refrangible rays, which when separated from the rest make red, were inflected at a greater distance from the Hair, so as to make three red fringes at a greater distance from the middle of the shadow of the Hair; and the most refrangible rays which when separated make violet, were inflected at a less distance from the Hair, so as to make three violet fringes at a less distance from the middle of the shadow of the Hair. And other rays of intermediate degrees of refrangibility were inflected at intermediate distances from the Hair, so as to make fringes of intermediate Colours at intermediate distances from the middle of the shadow of the Hair. And in the second Observation, where all the Colours are mixed in the white Light which passes by the Hair, these Colours are separated by the various inflexions of the rays, and the fringes which they make appear all together, and the innermost